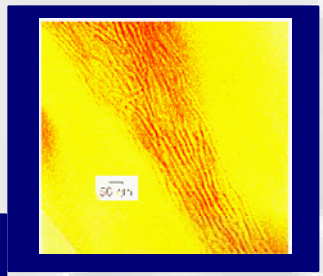
Center for Integrated Nanotechnologies

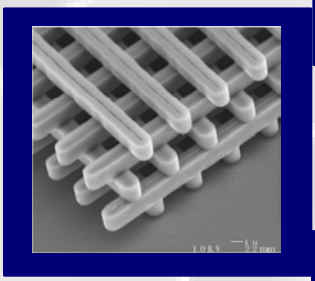
Sandia National Laboratories • Los Alamos National Laboratory

Department of Energy / Office of Science / Nanoscale Science Research Centers

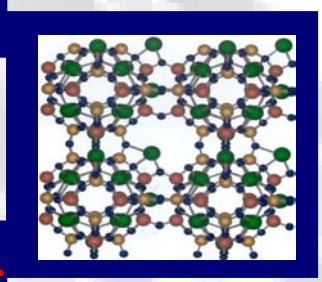
Center for Nanoscale Materials / Argonne National Laboratory • Center for Functional Nanomaterials / Brookhaven National Laboratory
The Molecular Foundry / Lawrence Berkeley National Laboratory • Center for Nanophase Materials Sciences / Oak Ridge National Laboratory
Center for Integrated Nanotechnologies / Sandia National Laboratories and Los Alamos National Laboratory



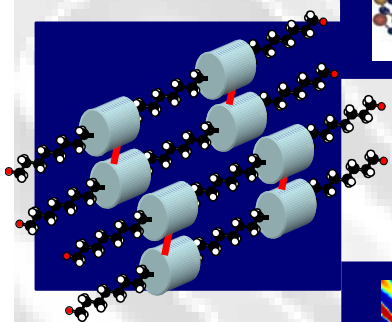
Nanoscale Polymers



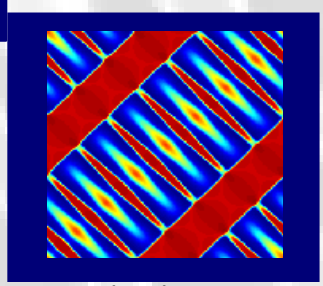
Photonic Lattice



Hybrid Nanocomposite



Coupled Quantum Dots



Stress Induced Nanostructure

The Center for Integrated Nanotechnologies

CINT is a Department of Energy/Office of Science Nanoscale Science Research Center operating as a National user facility devoted to establishing the scientific principles that govern the design, performance, and integration of nanoscale materials. Through its Core Facility and Gateways to both Los Alamos and Sandia National laboratories, CINT will provide open access to tools and expertise to explore the continuum from scientific discovery to the integration of nanostructures into the micro and macro worlds.

Scientific Thrusts

To address the National grand challenges of nanoscience and technology, CINT supports five scientific thrusts that serve as integrated synergistic building blocks available to the user community.

•Nano-Bio-Micro-Interfaces: to import biological principles and functions into artificial bio-mimetic nano- and microsystems.

•Nanophotonics and Nanoelectronics: to develop novel and unique properties necessary for the precise control of electronic and photonic wavefunctions.

•Complex Functional Nanomaterials: to promote complex and collective interactions between individual components in materials to yield emergent properties and functions.

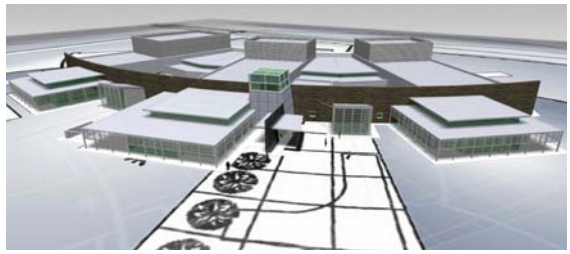
•Nanomechanics: to increase our understanding the underlying mechanisms of mechanical behavior of nanoscale materials and structures.

•Theory and Simulation: to provide state-of-the-art computational resources needed to address complex, multiple length-scale problems.

"One scientific community focused on nanoscience integration"

Facilities and Capabilities

The CINT community will have access to dedicated research capabilities in a 90,000 square foot CINT Core Facility in Albuquerque, NM (completed 2006), the CINT Gateway to Los Alamos (completed 2006), and the CINT Gateway to Sandia (existing). Together, these three facilities will provide laboratory and office space for researchers to synthesize and characterize nanostructured materials, theoretically model and simulate their performance, and integrate nanoscale materials into larger scale systems in a flexible, clean-room environment. CINT researchers will also have streamlined access to National User Facilities, including the DOE/BES Los Alamos Neutron Science Center and the National High Magnetic Field Laboratory. Through the CINT Gateways, researchers will be able to access leveraged Los Alamos and Sandia capabilities in biosciences, microelectronics, nanofabrication and computing.



CINT Core Facility in Albuquerque

CINT Gateway to Los Alamos

CINT Gateway to Sandia

User Program

CINT operates as a National user facility devoted to establishing the scientific principles that govern the design, performance, and integration of nanoscale materials. The user program provides access to state-of-the-art facilities staffed by laboratory scientists, post-doctoral fellows and technical support personnel who are leaders in the CINT scientific thrust areas. Access is via peer-reviewed technical proposals for independent or collaborative research. Proposal submission information is available on the CINT web site. There is no cost to the user with the exception of proprietary research, which will be conducted on a full cost-recovery basis in accordance with DOE regulations.

A Collaborative Research Environment

Los Alamos National Laboratory is operated by the University of California for the National Nuclear Security Administration, U.S. Department of Energy with a mission to enhance global security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health and national security.

Sandia National Laboratories are operated by Lockheed Martin Corporation for the National Nuclear Security Administration, U.S. Department of Energy with a mission to help our nation secure a peaceful and free world through technology by providing research and development capabilities in national security, energy and environmental technologies, and economic competitiveness.

Contact

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